

WHAT IS CLAIMED IS:

1. A radial tire comprising:

a carcass layer formed of at least one radial carcass ply disposed between a pair of bead members;

a tread disposed at a tire radial direction outer side of a crown region of the carcass layer, and forming a ground-contact portion;

a belt layer formed of at least two belt plies each formed from rubber-coated metal wires, and disposed between the tread and the crown region of the carcass layer, the belt layer being structured such that, in at least one belt ply of the belt layer, at least a majority of metal wires in the ply exist as metal wire bundles in which a plurality of metal wires of circular cross-sections and substantially equal wire diameters are aligned in parallel without being twisted together, the metal wire bundles being aligned planarly and in parallel with intervals between the metal wire bundles in the width direction of the belt layer; and

at least one of a reinforcing layer, which is formed of organic fibers covered with rubber, and a reinforcing layer, which is formed of rubber or whose main component is rubber, the reinforcing layer being disposed between the tread and the belt layer.

2. A radial tire comprising:

a carcass layer formed of at least one radial carcass ply disposed between a pair of bead members;

a tread disposed at a tire radial direction outer side of a crown region of the carcass layer, and forming a ground-contact portion;

a belt layer formed of at least two belt plies each formed from rubber-coated metal wires, and disposed between the tread and the crown region of the carcass layer, the belt layer being structured such that, in at least one belt ply of the belt layer, at least a majority of metal wires in the ply exist as metal wire bundles in which a plurality of metal wires of circular cross-sections and substantially equal wire diameters are aligned in parallel without being twisted together, the metal wire bundles being aligned planarly and in parallel with intervals between the metal wire bundles in the width direction of the belt layer; and

at least one cap layer in which organic fibers are covered with rubber and which is disposed between the tread and the belt layer.

3. A radial tire according to claim 2, wherein the belt layer is formed of two belt plies.

4. A radial tire according to claim 2, wherein the belt layer is structured such that, in all of the belt plies of the belt layer, at least a majority of metal wires in the ply exist as metal wire

bundles in which a plurality of metal wires of circular cross-sections and substantially equal wire diameters are aligned in parallel without being twisted together, the metal wire bundles being aligned planarly and in parallel with intervals between the metal wire bundles in the width direction of the belt layer.

5. A radial tire according to claim 2, wherein a value of an aspect ratio  $D_s/D_L$  of a short diameter  $D_s$  to a long diameter  $D_L$  of the metal wire bundle in a cross section orthogonal to the longitudinal direction of the metal wire bundle is substantially  $1/n$ , where  $n$  is a number of metal wires in the metal wire bundle.

6. A radial tire according to claim 2, wherein a number  $n$  of metal wires in the metal wire bundle is 2 to 6.

7. A radial tire according to claim 2, wherein a wire diameter of the metal wires in the belt layer is 0.18 to 0.35 mm, and a tensile strength of the metal wires in the belt layer is 3130 to 4410 MPa.

8. A radial tire according to claim 2, wherein a wire diameter of the metal wires in the belt layer is 0.19 to 0.28 mm, and a tensile strength of the metal wires in the belt layer is 3430 to 4410 MPa.

9. A radial tire according to claim 2, wherein a material of the metal wires in the belt layer is a steel material containing at least 0.7% by weight carbon.

10. A radial tire according to claim 2, wherein the belt layer is formed of two belt plies, and given that  $G_1$  is a total thickness of the two plies,  $G_2$  is an interval between metal wires of a radial direction inner side ply and metal wires of a radial direction outer side ply, and  $\delta G$  is an interval between the metal wire bundles in each ply, relationships of the following formulas are satisfied:

$$1.00 \text{ mm} \leq G_1 \leq 2.00 \text{ mm} \quad (1)$$

$$0.32 \text{ mm} \leq G_2 \leq 0.65 \text{ mm} \quad (2)$$

$$0.25 \text{ mm} \leq \delta G \leq 1.00 \text{ mm} \quad (3).$$

11. A radial tire according to claim 2, wherein the metal wires in the belt layer form an angle of 15 to 35° with respect to an equatorial plane of the tire.

12. A radial tire according to claim 2, wherein the organic fibers in the cap layer are aligned substantially parallel to a tire circumferential direction.

13. A radial tire according to claim 2, wherein a material of the organic fibers in the cap layer is polyethylene naphthalate.

14. A radial tire according to claim 2, wherein a material of cords of the radial carcass ply is polyethylene naphthalate.

15. A radial tire according to claim 2, wherein at least one reinforcing layer, which is formed of rubber or whose main component is rubber, is disposed between the tread and the belt layer.

16. A radial tire according to claim 2, wherein at least one reinforcing layer, which is formed of rubber or whose main component is rubber, is disposed between the cap layer and the belt layer.

17. A radial tire according to claim 16, wherein a width, in the tire width direction, of the reinforcing layer is 70 to 110% of a width, in the tire radial direction, of a tire radial direction innermost side belt ply.

18. A radial tire according to claim 16, wherein a thickness of the reinforcing layer is 0.2 to 1.2 mm.

19. A radial tire according to claim 16, wherein a thickness of the reinforcing layer is 0.3 to 0.8 mm.

20. A radial tire according to claim 16, wherein a 100% tensile stress of rubber portions of the reinforcing layer is 1.0 to 8.0 MPa.

21. A radial tire according to claim 16, wherein a 100% tensile stress of rubber portions of the reinforcing layer is higher than a 100% tensile stress of rubber of the tread.

22. A radial tire according to claim 16, wherein the reinforcing layer whose main component is rubber contains short organic fibers or short metal fibers.

09853674-05140  
P.O.T.S.O. 72925860